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| **Pui Wah:** | Hi, Mom. I’m Back. |
| **San San:** | Auntie, How are you? |
| **Mother:** | Hi, San San. Make yourself at home. Our home is your home, alright, sweetie? |
| **San San:** | Thank you for your hospitality, Auntie. |
| **San San:** | It's not a bother. We promised your parents we'd take care of you. |
| **Pui Wah:** | Right! I was absolutely delighted when I heard that you'll stay here for a couple of days since your parents are out of town. It's awesome! No more talking. Let's eat dinner. |
| **Mother:** | Alright, San San. Go wash your hands. Pui Wah, come and help me. |
| **Pui Wah:** | Okay. |
| **Father:** | Hey, San San. Welcome home. |
| **San San:** | Hello, Uncle. |
| **Father:** | Pui Wah Where's Mom? |
| **Pui Wah:** | She's cooking in the kitchen. |
| **Father:** | Oh, alright.Wow, what's so much good food? I'm really lucky tonight. |
| **Pui Wah:** | It's not for you, Dad. We did it all for San San. |
| **Father:** | Alright, I'll get changed. |
| **San San:** | Hey Pui Wah, my home always smells so greasy when my mom is cooking, but at your house, there isn't any smell and the air is really fresh. |
| **Pui Wah:** | You notice that? It's because Mom switches on the exhaust fan and the extractor hood when she's cooking, so that's why we have fresh air in here. No greasy smells. |
| **San San:** | Hmm. |
| **Pui Wah:** | Wow!  |
| **Mother:** | It's not only the ventilation. I ask your uncle to thoroughly clean the exhaust fan, the extractor hood, and the air conditioner filter when he has time off of work. This ensures the air ventilation system works properly. This is a very serious matter that can't be delayed just because we happen to be tired or we're lazy. |
| **San San:** | You're really concerned about the indoor air quality, aren't you? |
| **Mother:** | Of course. Apart from going to school or to the office, we spend most of our time at home, so we have to make sure we have good indoor air quality. It ensures we can have a much healthier life, more quality sleep, and it reduces our chances of suffering from respiratory diseases.And besides, the basic steps we take, like regularly cleaning our home. We make sure that we never use chemical cleaning sprays or pesticides anywhere inside our house. |
| **Pui Wah:** | Ah, I understand. Lots of pesticide sprays, smoke grenades, hair sprays, and adhesives will release volatile organic compounds called VOCs when we use them. These organic compounds will vaporize at room temperature, the indoor air will be polluted, and highly saturated VOCs can cause discomfort to the eyes, nasal cavities, and throat, and cause headaches, too. When VOCs contact with nitrogen oxide in open spaces, this causes a chemical reaction, which forms ozone and particles, and this happens to be one of the main causes of smog. |
| **San San:** | But it's very common for families to use these products. They might not pay attention, so prevention will be difficult. |
| **Mother:** | You see, recently the government has been strengthening its regulation of VOCs. The Air Pollution Control, Volatile Organic Compounds, regulation was established by the government a couple of years ago. It regulates VOCs emitted from paints, coatings, and inks, and some consumer products as well, such as air fresheners, hairsprays, lubricants, pesticides, and insect repellents. Basically anything that contains any VOCs. The manufacturers and importers have to ensure these products meet the required standard, and the annual sales need to be reported. The emission of VOCs has reduced dramatically since the implementation of this regulation.  |
| **Pui Wah:** | One more thing, we can opt to buy and use low VOCs or even VOC-free products in our daily life. And when it comes to renovation materials like paints and adhesives, product details are listed on their packages and containers. To go one step further, we can choose to buy products that are sold with much less packaging because VOCs are even emitted during the printing process of these packaging materials. |
| **San San:** | Mmm, I understand. Then I'll pay more attention. Oh, my home is going to be repainted next month. I need to remind my parents to choose VOC-free paints before then. |
| **Father:** | Yes, that's right, San San. Our family is always conscientious of the living environment. You should be also.  |
| **Mother:** | Let's take a seat now.And aside from those VOCs, another common type of indoor air pollutant is what we call secondhand smoke. Secondhand smoke is a kind of compound fume. It is released from cigarettes, pipes, and cigars. It spreads more than 4,000 kinds of gases and particles. Some of them are carcinogenic substances. They can irritate therespiratory system, can cause lung cancer, even cardiac-related diseases and other illnesses. So that's why smoking is strictly forbidden in our home. |
| **Mother:** | Oh, no, I never smoke when I'm at home. I've stopped completely. |
| **Pui Wah:** | Yeah, right. I remembered when the government fully implemented the indoor smoking ban. Dad struggled with it for quite a while. But still, you quit smoking and got rid of that bad habit. |
| **Father:** | That's right. After the implementation of the ordinance, I was banned from smoking in the office and the restaurants downstairs. And the price of cigarettes went up so much, I was determined to stop. And so now, since I quit, I feel that I'm healthier now. I don't get winded anymore. And guess what? I don't even cough. |
| **Mother:** | Okay, the meal's getting cold now. Let's talk after dinner.Hey, everyone, have some oranges. I just bought them. They're really fresh. Eat a lot. They're healthy. |
| **Father:** | Oh, right. Pui Wah, that's right. You've just entered college. Have you gotten used to the new environment yet? |
| **Pui Wah:** | It's pretty good, I guess, but the workload is much, much more than before. However, I really like the campus environment very much. |
| **San San:** | Hey, the campus is much bigger than ours in high school, right? I really want to hear more and are there any special new facilities on the campus? |
| **Pui Wah:** | Well, there are the same things like a library and classrooms, but I really like the design and planning of the entire campus itself. They really aim to provide a conducive learning environment for us students. |
| **San San:** | Conducive learning environment? Just how conducive? |
| **Pui Wah:** | Actually, during the process of designing the architecture, my school considered lots of environmental factors then installed some equipment which match the campus's environment and requirements. For example, mechanical ventilation and air conditioning has been installed on the campus. It's also known as MVAC. It refers to a system which regulates the heating, cool air, humidity control, ventilation, or air purification for the air conditioner-equipped areas. It differs from ordinary window air conditioners or split-type air conditioners. MVAC can extract fresh air directly from those areas that have clean air, then pump the air to all different parts of the campus. It can also filter and purify the air for indoors, and it regulates indoor temperature and humidity. |
| **Mother:** | MVAC. Is that anything like central air conditioning? I have heard before that some kinds of biological contaminants can be spread by this type of air conditioner. |
| **Pui Wah:** | I know, I've heard it too. In the buildings that are equipped with MVAC systems, the humidity that gets trapped up in the ventilation systems is commonly known as a breeding ground for hazardous germs. For example, mold and bacillus tubercle, those germs can be spread to indoor areas by the ventilation system. And then it can affect our health. For another example, Legionella pneumophila may be found in some cooling standpipes that don't get cleaned. Our respiratory passages will be infected by this germ, which may lead to diseases like pneumonia or even death. But luckily the ventilation system in my school has been regularly cleaned. |
| **Mother:** | Then we better pay extra attention. Hong Kong has high temperatures and relative humidity also. This not only favors the breeding of germs, but also accelerates the growing speed of fungus. If the water resistance measures on a building are poor, rainwater can sink into the walls. Or if the carpets have been inundated, then the amount of fungus grown can be massive. Most of this fungus can cause us to suffer from allergies or even from shortness of breath, and even form VOCs. Those will cause a noticeable musty smell indoors. And by the way, I can't tolerate a musty smell indoors. |
| **Pui Wah:** | Lucky both my home and school are incredibly clean, so there's no musty smells.  |
| **Mother:** | It's very important to have good ventilation in the classroom. When you're sitting in school, there are a lot of people sitting all together. So if someone happens to get sick, flu germs and other viruses may spread widely and quickly. Other classmates can become infected easily this way. This is how diseases spread. So that's why it's very important to have adequate ventilation of indoor spaces at all times. |
| **Father:** | But if the school keeps the air on all the time, won't that consume way too much energy? |
| **Child B:** | You're right, Dad. But since the school is surrounded by residential areas and far away from roads, we always keep the windows wide open.That allows fresh air in. We only turn on the air conditioning during rainy days or very humid days. |
| **Father:** | Hmm. I understand.  |
| **Pui Wah:** | And the college has also considered many measures on improving the indoor air quality as well. The school furniture and materials used in renovation are all made using low formaldehyde materials. I think you may have heard of it. Formaldehyde is a gas that is colorless but has a bad smell. It's found in pressed wood products and in fiber boards as well. Formaldehyde can irritate the eyes, the nose, and the throat. And the World Health Organization International Agency for Research on Cancer has classified it as a carcinogen. But fortunately, we have good ventilation in all of the newly renovated classrooms, so the students' health can be assured. |
| **Mother:** | That's right. Actually, there are lots of environmentally friendly building materials available to use now, so we can be more selective and help to improve the indoor air quality. For example, one kind of commonly found indoor pollutant is called radon gas. We can actually reduce the emission of radon gas by selecting suitable building materials. |
| **San San:** | So besides formaldehyde, what is radon gas? |
| **Mother:** | A radioactive gas emitted from soil, and rocks, and granite, and building materials. Radon is all around us right now. It releases radioactive fallout as it decays. This radioactive fallout will accumulate in a person's lungs as we breathe and affect our health. The chance of developing lung cancer will increase by inhaling too much radon gas, so in order to improve the indoor air quality, we have to seriously consider all of these related issues. Further, we also need to take note of building location, building design, choice of building materials, planning of indoor ventilation, and even the selection of furniture. If we pay attention closely, these solutions will all provide better indoor air quality. |
| **Pui Wah:** | I know what else we can do. We can use more indoor plants. They aren't only nice to look at, but they also improve the indoor air quality.  |
| **San San:** | However, are there certain kinds of plants better suited for indoor air quality? I always get hay fever. |
| **Pui Wah:** | Hmm, I never really paid attention to that. It seems that there would be a massive issue on the relationship between plants and indoor air quality.  |
| **Mother:** | The trend in recent years, no matter in terms of architectural design or life habits, everything is associated with the concept of sustainable development. What this means is that we are not only to fulfill the demands of our own lives and reduce pollution and waste, we must also not affect the well-being of the future generations to come. So while we strive to maintain the very best indoor air quality, we must also pay attention to energy usage and reduce the dependence for mechanical ventilation systems. The habit of keeping windows open that you mentioned a moment ago is also a measure of protecting our environment. |
| **San San:** | I understand. I have to pay more attention. When they come home, I'll ask Mom and Dad to be more concerned with indoor air quality. |
| **Mother:** | Alright. We've talked for so long. Hey, Dad, how about you? You mentioned that the air conditioning was fixed at work, and it took so long. How is it? |
| **Father:** | Yes, that's right. Listen to this. Our company enrolled in the Indoor Air Quality Certification Scheme. It's a program that was developed and initiated by the Hong Kong government. |
| **San San:** | What is that, Uncle? |
| **Father:** | Oh, well, it's a good program, carried out by the Environmental Protection Department. It aims to improve indoor air quality and strengthen the public's awareness of this important issue. The verification is for voluntary enrollment. It's meant for public places, like offices, open spaces like malls, and of course fitness centers. They hire authorized inspectors to advise them and collect indoor air samples for measurement. When they meet the standard, the premise owner can submit the certificate to the Environmental Protection Department's Indoor Air Quality Information Center for registration.So far, our company has been awarded the good class of Indoor Air Quality Standard, but we won't stop. Now, we are targeting the excellent class. |
| **San San:** | Wow, that sounds really good. |
| **Father:** | It is. We have regular visits by the inspector to measure our air quality since our company first enrolled in the scheme. And every time after the inspection, we try to fine-tune our procedures and make improvements based on the inspection report. For example, we launched a detailed cleaning and maintenance plan for the mechanic ventilation and air conditioning systems. Then we set up adequate or independent ventilation systems for the copy machine, the printer, and the fax machine. Since these are the items that easily release pollutants, we have to ensure the ventilation system works properly. |
| **Pui Wah:** | So what's been the outcome since enrolling in this Indoor Air Quality Certification Scheme? Has the indoor air quality improved? |
| **Father:** | That depends upon your own observations and judgment. But I know that more and more private organizations and public spaces are now caring about indoor air quality. They realize that this is closely associated with their users' good health, and they understand that their staff's work rate can be stimulated with good air quality. I heard that some property management companies are using more environmentally friendly renovation materials for shopping malls and offices. This leads to improving indoor air quality.  |
| **Mother:** | So for the sake of improving indoor air quality and promoting sustainable development, each of the different sections of our society must all participate. But at the end of the day, we need to take action on our own behalf first. We should pay more attention to what we do in our own lives. We can avoid using products that contain pollutants, limit our use of the air conditioner, make sure we regularly clean our homes, reduce germs and house dust mites and the like. In this way, we can assure we have a clean family home. And this will result in better indoor air quality. |
| **Pui Wah:** | After listening to all this advice from Mom and Dad, I'm going to use indoor air quality as the topic of my thesis for the semester paper.  |
| **San San:** | I've already joined the Environmental Protection Club, and I'm going to recommend Indoor Air Quality as the theme for the next promotional event.  |
| **VO:** | If you want to know more about Indoor Air Quality, you may contact us through the following ways. |